

Established 1848.

COLMAN'S RURAL WORLD.

NORMAN J. COLMAN, EDITOR.

Published every Wednesday, in Chemical Building, corner of Eighth and Olive streets, St. Louis, Mo., at one dollar per year. Eastern office, Chalmers B. Colman, 130 Temple Court, New York City. Advertisers will find the RURAL WORLD the best advertising medium of its class in the United States. Address all letters to COLMAN'S RURAL WORLD, Chemical Building, St. Louis, Mo.

Subscribers should bear in mind that the RURAL WORLD is stopped when the time paid for has expired. To keep up a constantly increasing subscription list we allow old subscribers to send a NEW name with their own for one dollar, and to add at any time NEW names at fifty cents each—but renewals without new names are at one dollar a year. We also allow subscribers to club with the twice-a-week "Republic" or the twice-a-week "Globe-Democrat" at \$1.50 a year, securing two one-dollar papers at that very low price. We appreciate the kind efforts of our patrons in all parts of the union in speaking good words in behalf of the RURAL WORLD, and it is to these efforts we attribute our constantly increasing circulation.

THE USE OF COMMERCIAL FERTILIZERS.

It is not surprising that the use of commercial fertilizers in the west should increase. History is but repeating itself. Numerous reports from Missouri indicate a much larger amount being used this year, and particularly with fall-sown wheat, than ever before. In Iowa, where the soil is very rich and productive, commercial fertilizers are still an unknown quantity, but the same tendency is indicated by another fact. The Hawkeyes farmers have never in the past despised the use of barnyard manure for half a century, within the last five years some of the most observing are moving it on to their fields, and being amply repaid for the labor. It is no longer the fashion there to move the stable. How long will it be before Iowa, too, takes up seriously the buying of nitrogen, phosphoric acid and potash? That it is inevitable is a statement of the question doubts. That it may be deferred for many years by the judicious application of stable manure and by a rational system of crop rotation is equally certain.

The news of a growing appreciation of chemical fertilizers is pleasant and encouraging. It is unpleasant as registering the gradually lessening amount of natural plant food in the soil, which we view with feelings akin to the sadness of the passing year. The melancholy days have truly come, but just as there is a springtime ahead with budding buds and opening promise, so is there a better time ahead for the tiller of the soil. And this phase of the news is encouraging. It means methodical cultivation, careful and economical use of the soil, a more intelligent use of the processes of plant growth and final adjustment of agriculture to the doctrine that farming is a manufacturing, rather than a mining operation. All old farming communities have been through this evolution, and European countries have as the result the most productive farms in the world. New England is in the transition stage, but men like Prof. Jeremiah Sanborn are rapidly reclaiming the thickets and exhausted and abandoned farms in that section, and by taking advantage of nearby markets are reaping the harvest of higher prices. The testimony fully proves the wisdom of the use of commercial fertilizers. Missouri and Iowa, and all the rest of the Mississippi valley must come to it some day, and the sooner the question is met squarely and provided against, the better it will be for the present as well as future generations.

Of course, there is a larger question, which need not worry us. It is the future. "What is to be the fuel of the future when the coal deposits are exhausted?" The world's supply of potash, nitric acid and phosphorus are not inexhaustible, and while the question, "How is the world to be fed when the guano beds, the phosphate deposits and the potash mines are cleaned up?" need not cause the present generation any uneasiness, it is a fascinating subject for speculation.

Doubtless some new system of plant sustenance will be discovered just as the use of light, heat and power is already solved by the marvelous resources of the electric current.

Niagara has been harnessed and the thunder of the cataract is now the chain-lightning of commerce, slipping noiselessly along the surface of a copper wire; a few miles away the housewife may cook her roast, turned on the spit in a brilliant light, and the same wire, the Colorado river, thundering down the mile-deep gorges of the Grand Canyon, awaits the same transformation. The peaceful bosom of the Mississippi gliding by the city of St. Louis bears potential energy, which, if conserved and applied by turbines and dynamos, would turn every wheel in this metropolis, would turn every farm enough power—well, we are safe enough on the fuel, light and power question, anyway, and when we consider that our little pinch of soil is but the pulverized film of the earth's rocky crust, all we need for future fertility is to apply the disintegrating power of electricity to the lower strata.

COMPENSATIONS.

Things are never wholly bad. There are always compensations for tribulation illustrated by the black storm cloud threatening disaster and the silver lining upon which the sun is still shining. In many cases, indeed in most cases of threatened or apparent trouble, the sunshine of compensation overpowers the blackness. In no recent instance affecting the farming community as a whole is this better illustrated than in a review of two years—a dry and a wet season, both so different, and both considered by many as disastrous.

It is evident that in dealing with statistics one must generalize, and we should also bear in mind that queer, double-jointed apothems, that "no generalization is wholly true, not even this one." However, a wholesale statement, based upon statistical reports, of some of the features of the lean-fall drought year of 1901, and the fat-lean wet season of 1902, will have some interest in proving that we are never quite so happy, nor so miserable, as we think ourselves.

The drought of last year was the most widespread, the longest and the most severe of any in the history of our country. It is needless to dwell upon the particular phases of that very unusual season. Those who watched every green thing shrivel up under a scorching sun, know how it feels. The winter crop was particularly hard hit. The yield for the United States was in round numbers 1,682 million bushels, against 2,105 million bushels for 1900. Yet the money value of this crop on Dec. 1 was \$31 million dollars, while the value of the big crop of 1902 was \$74 millions. The average price in the bumper year of 1902 was 37 cents, while that of the dry year following was 24 cents. The enhanced value of live stock is directly attributable to the drought. Many truck farmers made more money with less work during that dry season than ever, because what they produced brought a good price. The western farmer, learned lessons of economy, which alone are worth the sacrifice, if he will but heed them.

During the past season crop losses were severe in lowlands by reason of the unusual floods; much grain sprouted in the shock field, the wet season delayed the maturing of the corn crop, and in many localities early frost did great damage. Yet the rivers, ponds, springs and wells are again replenished, the earth has been saturated with moisture, tree life has made a phenomenal growth, pastures have been lush and green all summer, and an unprecedented crop year generally, with beef high and feeders and stockers low, is all in the line of nature's compensating balance, which even things up. The uncertainty of threatened disaster is the hardest part of the life of the farmer. The life of the farmer is a life of the future, and the compensation enabling us to meet difficulties bravely and with the faith that after all they may be blessings in disguise.

A MISSOURIAN IN OKLAHOMA.

Editor RURAL WORLD: The Rock Island railroad after stretching its tentacles all over Oklahoma, has pushed its advance head south into Texas. I boarded its train this morning at Fort Worth to have a flying trip north through the very center of Oklahoma. We rolled over the limestone gravel pastures of the prairies north of Fort Worth, crossed the "post oak timber" section of country between the bridgeport and Bowie, and bowed over the smooth rolling prairies north to the Red river, which is spanned by a handsome bridge, forming a new gateway into the "Lone Star State." From this point the road intersects the Indian Territory, skirting the eastern boundary of Oklahoma, and the way to El Reno where it dives straight through its center to Caldwell, Kansas, the old-time cattle loading point of the Cherokee strip.

The Fort Worth prairies are not inviting to look at. My heart aches at sight of the "cross timbers," the prairies north of which grassy, clean-looking little town, with a suspicion of newness about it, but entirely lacking in that noticeably patchwork appearance so noticeably in all Texas towns. Can this lovely, undulating agricultural landscape be the old Reno cattle trail of twenty years ago, when the Indians levied tribute for water and grass from the trail cattlemen? The same topography is there, the top of the Wichita mountains still peep at you as you rise to the divide between the Red and Canadian rivers, but the life, saucy Indians of old have made way for the thrifty farmer. Their old log-hut and toper have been replaced by comfortable looking, neatly painted farmhouses and prosperous towns. Every little way station is crowded with cotton bales and every pasture has its bunch of cattle. In this section the long blue stem divides bonora with the Buffalo and grama. Grasses on the open prairie, and the red sand grass retains its hold on the schiny ridge. After all, it is the Indian Territory of old, but arrayed

ed in the garb of civilization and progress, donned for the first time only a few years ago, with the advent of the railroad over which my car is smoothly rolling at forty miles an hour. The evolution has been complete, the railroad has been the power to effect it.

Thirty-two miles south of El Reno the train pulled into the hustling little town of Chickasha, where the passengers are treated to a comfortable dinner, which would have been a feast to the cowboys crossing the same trail fifteen years ago. Half an hour later we are crossing the Canadian river and rapidly rolling into the very center of Oklahoma, which, judged from an agricultural standpoint, is now as thickly settled and as closely cultivated as a majority of the original thirteen states of the union. The daily "press" teems with details of agriculture in Oklahoma. I shall, therefore, pass this part of the subject over and content myself by saying that it very much resembles a section of the best part of Central Kansas. The soil is neither better nor worse. It is of a redder texture, which betokens a larger percentage of iron, and probably of alkali, than is possessed by the soil of its neighbor on the north. Its climate is a little earlier, its winters a little milder and shorter; along its southern reaches it can successfully grow cotton, otherwise it is chiefly remarkable for the speed and completeness of its settlement. Twelve years ago there was no settlement on this territory. To-day it is closely settled by a hustling class of citizens, mainly from the north. The fact that it had to be homesteaded made cultivation general, more general than profitable in many instances. Much of this district has been cultivated which could have been more profitably used as pasture, but the temptations to get something for next to nothing at Uncle Sam's grub trough was sufficient inducement for many to leave good homes and remunerative employment to subside a home for themselves on the plains. Only those who have experienced this, the trials and vicissitudes which attend such a task, and many who left in high hopes gave up the struggle early in the game and returned poorer in pocket, but richer in experience.

But the start was there, the district was there, the district has been settled for half a century. It is probably the best cultivated section of the middle west, for the reason that it was fully settled up at a time when there had no time to develop its towns are all new with the latest style of structures. The initial boom is still on. It has done in six years what is usually accomplished in sixty. As viewed from the Rock Island railroad it is undeniably pleasant to look on. The crops are all housed, wheat planted and the green, I noticed a great many patches of milo maize; some cut for the second time, but much still waiting the harvester. I only noticed two fields of Johnson grass, and these were in the Indian Territory. Evidently Oklahoma farmers prefer milo maize to the Johnson grass, and have learned earlier about milo maize than the farmers of the "cross timbers" in Texas.

Oklahoma is a great exemplification of American push and energy. The condition of the agriculture, considering its brief existence, is simply marvelous and almost past belief. It is not pioneer farming and living in poverty and hovels, but it is up-to-date farming on a grand scale, with capital. Their cattle and horses are well bred. Their improvements modern, comfortable and efficient, but in the same class of men, same energy, push and capital would make a dozen other sections in the country bloom just as well were it applied.

Turn the farmers of Oklahoma loose on the rich black soils of the prairies of North Central Texas, and then hear the cotton gins of that section hum as they never hummed before, and see the Fort Worth stock yards filled as they ought to be by the rich herds of a farming population to supply them.

The railroads have made Oklahoma. The people of Oklahoma have encouraged railroads. The farmers of Texas have opposed railroads, and like the old mossa-back, backwoods settlers of Missouri, are crowded if they have a neighbor within an hour's ride of their home. Railroads have been forced on Texas in face of adverse legislation. Oklahoma hustles for them. The oldest settled and richest farming district in the state of Texas is a decade behind the Territory of Oklahoma in agriculture, push and intelligence.

I do not make invidious comparisons here for the fun of making them, but to extend to your Texas readers an invitation to go up to Oklahoma and see for themselves. Nor do I praise the Oklahoma farmers for their push and energy to induce them to rest on their laurels, but rather to encourage them to arm themselves with the most modern implements, and these are many, serious and not far distant.

The almost unprecedented conditions which make it possible to place a bona fide settler on every quarter section of so extensive a territory, carried with them serious drawbacks to the permanent welfare of the district. The rush of people which settled this territory were not all practical farmers, and a very small percentage of western practical farmers give any thought to the future of their soil, their motto being, "to-day is ours; let tomorrow take care of itself." To hold their homestead they had to improve and cultivate; this was done irrespective of the value or suitability of the soil for crop-

ping, with the result that much land has been cultivated which will not pay to crop and would have been much more valuable in its natural pasture. This remark will apply to one-third of the entire territory. Still another thing is light, thin soil, which requires careful cropping and nurturing to keep it up to its initial fertility. It is a foregone conclusion that a very small percentage of it will be farmed in this way, with the result that much of this class of soil will in a few years fall to pay the expense of cultivation. The other third, constituting the remaining portion of the territory, is being dropped for all that it will produce, year after year; it also has its limit, but its owner will be able to pull it out of the stage where the soil gives all and receives no consideration in return, and may earn an existence during the transition stage to where the soil receives quite pro quo for what it gives.

The entire territory, owing to climate conditions, is unsuitable for clover or the ordinary tame grasses of the corn belt. This adds materially to the difficulty of keeping up the initial fertility of the soil. The Oklahoma farmers have a hard row to hoe ahead of them. Ten years hence to the best of my knowledge, and I expect it will not be in the form of an improvement, at least in general appearance. The condition to-day is unique and almost compulsory. The virgin resources of the soil are being drawn upon to the limit. While it lasts the spectacle is grand and imposing, but it is not agriculture and cannot possibly last. The transition will bring ruin and misery to many; prices of land will drop and the present wildcat values of real estate in the towns and cities will sink below zero.

This is not pessimism. It is the handwriting on the wall. It will only be history repeating itself. The rise and development has been marvelous, rapid and complete. The collapse, which is inevitable, and a natural sequence to existing conditions, will be equally rapid and overwhelming.

This fate is largely earned to-day, and only the richest class of soil in the territory can escape the impending doom by intelligent farming and judicious cropping. Successful mixed farming is a hard problem in Oklahoma than in the center of the corn belt.

THOMAS LAWSON.

NOTES FROM AN OHIO FARM.

Editor RURAL WORLD: Our sorghum cane goes to the mill to-day; there is a good load of it and it will make 15 to 17 gallons. The syrup sells at 50 cents a gallon and we have at least eight bushels of value of \$4.50, from one-sixth of an acre. Our main object in growing the cane is the syrup for in the days of adulterations and "mix-at-ions" one must grow his own table syrup or else eat a combination of glucose and 10-cent a gallon "blackstrap." The cane is a bushy plant and for any kind of stock, and especially for young chickens, and ours are carefully cured and stored for use next spring. We also grew half an acre of Kaffir corn for the seed and fodder; it was grown on a clay knob that would not have made 10 bushels of corn, yet we have a least 15 bushels of seed, besides a lot of fine fodder.

We put in about a ton of cowpeas the other day, and we mixed it with sorghum hay half and half, and we mowed it away. The pea hay had some moisture in it, and the sorghum was very dry; we think the mixture will help us. I do pity the man and his family who exist from year to year with nothing but the regular farm crop, never any fruits, berries or vegetables, excepting a few bought in the markets—and very few at that.

Arthur was helping a farmer half a mile from us build some fence last week, and his employer said that he was going to sell all his hogs and buy his meat as he needed it. "What do you think of that?" The other day I was in a store in town and saw some fine breakfast bacon. I told the clerk that I would take half a dozen's worth, and bless me if it did not cost me of two and a half pounds!

The same day I saw a fine lot of hogs sold at 6 cents per pound. Any farmer who fails to put up enough meat for his own use makes a serious mistake, and the same may be said of the farmer who does not provide a good garden, truck patch and berry patch.

If you have not a garden already, go at it this winter and fence a plot near the house and manure it well, then next spring plant from early to late and see if you do not value your garden as highly as we do.

We will put up 30 bushels of potatoes, five bushels of sweet potatoes, four or five bushels of turnips and 200 heads of cabbage, and we have two bushels of dry beans. A good way to keep a few heads of cabbage for present use is to cut off the stalks and pack the heads in a barrel set half its depth in the ground and covered with straw or fodder.

Where one has a chance to dig into a bank and bury a large dry goods box they can keep a fine lot of cabbage or turnips and be able to get at them any time. I would never put either in a cellar where milk or butter or fruits are kept, as they will taint everything with their own odor and not keep nearly as well as in pits or cooler storage.

In burying potatoes where there is good drainage we always throw out a pit a full upside deep, large enough to hold 5 to 10 bushels, then we have about as many under ground as above it. Be sure to put

plenty of straw over the potatoes above ground and on the 15 to 18 inches of well-tramped earth. We have had 30 degrees below zero and I never lost a bushel of potatoes where I pitted them according to the above directions. Now I want to tell you something worth the price of the RURAL WORLD for ten years.

Select your own seed potatoes and keep them in your own cold storage, so that they will not sprout before planting time. Find a good, dry spot to bury them and do not bury until quite late in the season. Pile them up in a nice conical form, cover with three inches or more of straw and six inches of earth. Newby throw a pile of straw or corn stalks on the ground, and the first day that your thermometer shows about 15 degrees and the earth on the straw or stalks with the unfrozen earth under, cover the potato pit again six inches, and the next day repeat with six inches more. Next spring you will have better seed than you ever had under any other method of keeping potatoes. I know, for I have tried it.

We have had one of the finest autumn seasons I ever saw, and are well along with all of our fall work. I expect that by the time this is in print Harry and I will be home from a visit to Southern Kentucky, where my brother lives. While gone I am going to make some observations on cheap lands for men of small means and will write the result for RURAL WORLD readers. I go down every year, and always take one of the children with me. The part of the country I visit is near the Cumberland mountains, and is land of only medium fertility, but it lies well and is capable of rapid improvement with cowpeas and clover. There is much of such land in all the middle southern states, and it is nearly all very cheap. Some day it will sell as high as any land in the north, for it has several advantages over northern land.

Does any reader want a No. 1 farm hand for next year? If so I can send him one. Twenty-one years old, a fair farmer and an all-around careful young man. Is not a milker, but a farmer, and will expect the best of treatment and high wages in return for honest services. He can get any place open here, but does not like work in tobacco. Write me if you want to know more, and state the best wages you will pay; also what work you have to do.

C. D. LYON.
Higginsport, Ohio.

EXPANBION.

Editor RURAL WORLD: There are more ways of expansion than that expressed in a political sense, in the acquisition of new territory. All of life is but a great field of expansion. The child in the cradle begins to expand from the moment of birth. Each day adds to its size and strength, and as the weeks and years roll on it grows in stature and develops in mind until it reaches full-grown maturity.

During these years of expansion in strength and mind it is also expanding in the busy scenes of life. Its career is one of progress, either for good or for evil. It is sowing the seeds of sin or forming habits for virtue and happiness, and reaps the harvest in after life, according to the expansion it has made.

Every avenue of industrial or social life is one of progress and expansion. Every day life develops new ideas and new methods. Each day produces a larger fund of information and a greater knowledge, and thus prepares the way for the increased expansion that lies out beyond. So it is in every vocation of life, the actor begins at the foot of the ladder and gradually works his way up, and the elevation reached or the success accomplished is only in accordance with the preparation made in the expansion of intellect and ability.

In art and science and in the inventions the expansion made has been marvelous, and is continually expanding into new discoveries and new results. In literature the growth has been wonderful. Compare the newspapers and books of to-day with those of fifty or sixty years ago, and you hold the change that has been wrought. The metropolitan papers of to-day are marvels in size and excellence. The world's events are published in an incredibly short space of time after occurrence. In those other years, weeks elapsed before even the most important events reached the people. The improvement in the mechanical department's magazines are legion, and yet more and greater facilities and a larger expansion is being constantly developed.

In agriculture the strides have been even more rapid. The methods of the pioneer days have expanded into the improved machinery and implements of this age of progress. And with the labor-saving inventions have come a broader and a better knowledge of agriculture, and it has become a science, and is expanding into a still greater system. To this has been added the agricultural literature now so numerously published and circulated. Periodicals of every character pertaining to farm life and work are cheaply obtained. The RURAL WORLD is one of the most prominent and important factors in disseminating the experience and views of the most intelligent and successful class of farmers in all departments.

In the religious world a large expansion has been made. In the early days of the century the church was but poorly organized under a very imperfect system, hardships and exposure awaited the itinerant preacher, and a large scope of

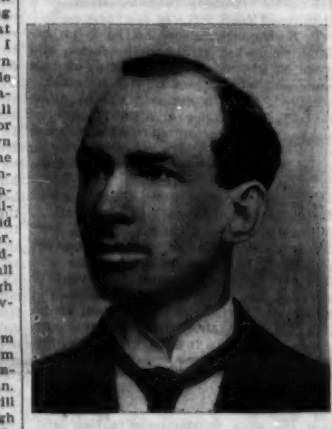
country was covered by each in his work. Scarcely any remuneration and amidst constant toil the struggling to spread the gospel and build up the Master's kingdom on earth. How is it now? Substantial and commodious church buildings abound in the rural districts; costly edifices grace the cities, and from the metropolitan churches to every village, hamlet and rural community the gospel is being proclaimed.

These are but a few of the prominent phases of expansion. To delineate others would occupy too much space. To touch on all is impossible. Enough has been said to demonstrate the possibilities that have accrued through expansion of thought, knowledge and activity, and to point to accomplishments as yet unknown.

DYPE.

PROF. CHARLES F. CURTIS.

To many of our readers the name of Charles F. Curtis is a familiar one. His frequent contributions to leading American and foreign agricultural publications have been seized upon by the exchange



PROF. CHARLES F. CURTIS.

editors, knowing that what Prof. Curtis wrote was "good stuff" and to be depended on. Thus his forceful style and sound, conservative teachings of things agricultural have become well known to thoughtful readers, who will be pleased to meet the genial professor face to face this week on this page of the RURAL WORLD.

While it is true that "by their fruits shall ye know them," it will also be interesting to know briefly of Prof. Curtis' career. He is now the dean and professor of agriculture of the Iowa State College of Agriculture and Mechanical Arts, located at Ames, and director of the Experiment Station. These positions he assumed in 1897, succeeding James I. Wilson, who resigned to accept the portfolio in President McKinley's Cabinet of Secretary of Agriculture. Previous to that he had been assistant director of the Experiment Station since 1891. He was state statistical agent under President Harrison's administration for four years. He had no lack of what hard-headed farmers call "practical" experience, having been engaged in breeding and inspecting stock while managing the home farm of 1,000 acres for the three years succeeding his graduation at the Iowa State College, where he was president of his class and from which he graduated with honors, showing thus, as, in fact, through all his early life the strength of character and studious habits which have borne fruit in the esteem with which he is held by all who have followed his advancement to the place of honor and responsibility he now occupies.

In evidence of this appreciation he has been president of the Iowa Stock Breeder's Association, member of the executive committee of the International Live Stock Exposition, member of the executive committee of the American Association of Agricultural Colleges and Experiment Stations, and he was selected as judge of stock at the Pan-American, Trans-Mississippi and International Expositions, as well as at a large number of state fairs.

To such men, striving in an atmosphere of congenial study and work for the highest achievement in their chosen calling is the agricultural world indebted for the deliverance out of the wilderness of archaic methods to the promised land of better ways of doing better things.

THE MINERAL WEALTH OF MISSOURI.

Missouri is half as large again as New York and more than eight times as large as Massachusetts, and larger than England and Wales. Mineral springs occur in every part of the state. The state of Missouri is one of the most remarkable pieces of this earth's surface. Indeed, Missouri goes far enough under the surface to furnish mankind with one million tons of coal a year for thirteen hundred years. With regard to iron it is not necessary to penetrate the surface for that; we have iron here by the mountains. The lead district of Missouri includes more than 7,000 square miles. In fifteen counties there is copper in rich abundance. There are large deposits of zinc in this state. There is gold. In short, we have in quantities that will repay working, gold, iron, lead, zinc, copper, tin, silver, platinum, nickel, emery, coal, limestone, sandstone, granite, marble, clay, fire clay, metallic paint, salt, petroleum and gas.

NEWS AND COMMENT.

The estimates of appropriations required for the Department of Agriculture for the next fiscal year, as completed by Secretary Wilson, aggregate almost \$5,000,000. The appropriations for the current year amounted to \$4,500,000.

Frederick W. Taylor, chief of the Department of Agriculture and acting chief of Horticulture, is making a tour of the southern state fairs and eastern cities in the interest of his department, which will have about thirty acres under roof and large outdoor areas devoted to various methods of farming and fruit growing.

An experiment in the growing of Egyptian cotton near Quitman, Ga., has proved a success. The seeds used were obtained from Florida, and the report states that the yield is heavier than that of short cotton, and the staple is superior to that of the sea island cotton raised in that section. The staple is about 1 1/4 inches long, very fine and has a silky luster.

The American soldier is again proving his versatility. He has shown that he can teach school to conquered nations, and now comes word that soldiers are being sent to teach the Filipinos how to farm. Agriculture in our far-off possessions is in a very primitive state, but the Filipino is adaptive and is expected to take readily to American methods.

This is Horse Show week in St. Louis. The Coliseum will be ablaze with green and white, the colors of the Association. Society, with a capital S will be resplendent at one of the most fashionable functions of the season. There will be horses also. Pedigreed animals of all classes, hunters, trotters, heavy draft, ponies, saddlers, high school horses, who believe in advanced education, and others.

President Roosevelt is well enough to go to Virginia on a turkey hunt. He will return in time to vote at Oyster Bay, after which he goes to Washington. The extensive repairs and alterations in the White House being finished the President and family will move in at once. The remodeled White House and the new Congressional Library building, the architectural gem of the capital city, go far towards making Washington the most beautiful, as well as the most interesting, of American cities.

We hear a good deal of stump talk during political campaigns about the "per capita circulation." It may be interesting to know that the treasury record of per capita circulation has been broken on Nov. 1, when the amount reached \$29.35. The total stock of money of all kinds on that date was \$2,627,963,297. These per capita figures represent in no way the relative wealth or prosperity of the country. It would seem from this high water mark of money in circulation, however, that there would be money good and plenty for moving crops, furniture or any other old thing.

Mr. W. J. Spillman, agronomist of the Department of Agriculture, has been in St. Louis this week and arranged with the state authorities for the use of a garden map of the United States. The map will constitute a part of the exhibit of the Bureau of Plant Industry and will occupy two acres. State lines will be marked by walks in red gravel, and in each state plat the economic plants produced in that state will be seen growing. Small floral maps will be forced under glass. The floral map spread out on the southern slope allotted would appear from the Agricultural building like a bird's-eye view of the United States, while the visitor, walking over the paths would, so far as vegetation was concerned, be making a tour of the country.

The opera bouffe revolution which has been on for some months in Central America threatens to collapse. The President, as usual, has fled to gray Paree with all the national plate, and the head of the revolutionists, with a fierce mustache and a resounding Spanish name, has been proclaimed dictator by himself. He will be elected President of the Republic in the same way, and quiet will reign for two weeks, during which the newly appointed general of the army with a resonant Spanish name and a huge mustache will be seen seditious seeds among the disgruntled and hot-blooded Latin, and a new evolution will be on the way. Better have all the fun you want now, General. Uncle Sam doesn't want any quarreling neighbors when he starts the big ditch at Panama—or Nicaragua.

Hon. Jacob R. Dodge, formerly statistician of the United States Department of Agriculture, died suddenly at Woburn, Mass., Sept. 25. Mr. Dodge has been in failing health for some years, but despite his 50 years maintained his marked mental vigor to the end. Mr. Dodge entered the Department of Agriculture in 1883, and was the statistician for 20 years, during which time he was one of the most liberal to the official agricultural literature of the country than any other official. He originated the admirable system of crop reporting now used in every country where effort is made to present current data of crop conditions. He was a strong and fluent writer on all subjects connected with the agricultural development and resources of this country and his writings on such subjects are accepted as standard authority. During the past ten years Mr. Dodge has been in private life, but found time to contribute liberally to the agricultural press and magazines, as well as prepare some special reports on economic topics for publication by the Department of Agriculture.

Horticulture

HORTICULTURAL TALKS.

THE CAPTAIN JACK STRAWBERRY.—Not very many years ago this was the most popular variety known, and why? First, because it was introduced through the RURAL WORLD by a man of good authority, who was recognized as being the time the best market variety known, being very productive, large, of good color and form, highly flavored and as firm as could be desired. Even to-day it is a favorite with many, and is so dear to me for more reasons than one that it will always have a prominent place in my collection. Aside from the fact that it is always given me pleasure and profit to grow it, I value it for the sake of being able to regard it as a souvenir of that good, honest, old man, Judge Miller, who has since passed away.

THE KENTUCKY GRAPE.—Among hundreds of new varieties of fruits being given to-day, there is only one species at one that gives satisfaction or comes near by the introduction. This is either because the introducer is booming it simply for the dollars and cents there are in it for him, or because the variety is local in its habits, the soil and climate not being suited to it at the place where it is being introduced. The Kentucky grape is certainly one of the exceptions, as we find it exactly as represented—that is, as large as Concord in bunch and berry, with quality of Norton's Virginia Seedling and very productive.

I am highly pleased with it, and shall propagate it for my own planting.

THE BEST SWEET CIDER.—According to my opinion the best sweet cider is made about as follows: Let in the season when weather is cold, select strictly sound apples of good quality, crisp and juicy, like Janet, Gipsin, Wine-sap, etc., which grind and press in a perfectly clean mill, and filter the cider as soon as made in the following way: Secure a clean, sweet barrel, remove one end and have a hole near the bottom; fill the barrel partly full of clean straw, which press down firmly, then put in a few inches of fine, clean sand, the sand having been washed for the occasion; then pour in the cider and run out at the hole into a clean, wooden vessel of some sort.

The cider should now go into a cask that is extra heavy and strong and thickly covered with the best hoops. The cask should be filled full, corked tightly and stored in a cool cellar until wanted.

Great care should be taken in tapping it, as it will foam violently at first. It should then be bottled off, bottles being corked and sealed with wax. When the main points in keeping cider are to have it absolutely clean and keep it airtight. Cider made and kept in this way is, in my opinion, the best drink to be had.

THE CARE OF TOOLS.—Many persons lose a great deal of valuable time each spring scouring tools that were improperly cared for the previous year. When through with the hoe, clean it thoroughly and give it a coat of oil or something else that will prevent rusting. Lime is my preference. Take good, fresh lime and slack it the same as for making mortar, thinning it to the consistency of thick paint. Dip the hoe into this and lay it away until wanted. At which time set it in a pail of water for a few minutes, and then make a few strokes with it in the sand pile, and your hoe will be as bright as it was before being treated.

This preparation is also good for the plow and other farm tools, to some of which must be applied with a brush.

By taking proper care of our tools we not only save time when it comes to using them, but we save the tools.

EDWIN H. RIEHL.
North Alton, Ill., Oct. 23, 1902.

A MUCH-ABUSED FEAR.

EDITOR RURAL WORLD: The Kettler is not of high flavor as compared with Bartlett or Seckel, but it is a place all its own; ripening so late in the season they may be left on the tree till nearly the middle of October in this latitude. The tree is hardy, less liable to the pear blight than other kinds, especially so if grown in soil with no cultivation. I have in mind a single tree eight or nine years old, which this season bore three and a half bushels of marketable fruit; the highest limes project twenty-five feet from the ground, with numerous pendant ones all filled with fruit in almost solid strings. The body of the tree is twenty-five inches circumference, three feet from the ground; there was no pear blight.

For canning, which is one of its strong points, it proves to be one of the best, coming so late in the season after the summer heat, the discomfort to the housewife at a minimum—solid and firm when properly handled, they do not break down as so many when prepared for the table; they make a very attractive dessert. It is to be ripened to eat out of the hand, picked from the tree by hand, leaving the stem unbroken; this is readily accomplished by lifting the pear at right angles to the limb or twig, which will easily part if it is ready to come; if bruised they will surely decay. Placed in layers barely touching in shallow boxes or trays, first lining with paper or cloth, place in a cool, dry place, assorting from time to time any imperfect fruit; increase the temperature when desired to hasten the process until they assume the rich golden color so very attractive in appearance and good and juicy to eat.

I have seen no mention of late of the Beurre Giffard pear, one of the best and very attractive early pear. When well grown on quince stock they are at their best; rich, yellow, splashed with red cheeks.

The Beurre Rose is one of the handsomest and most delicious pears; rich, golden russet, smooth on the surface. To ripening; it makes an elegant appearance on the table, and is delicious to eat out of the hand.

EDWARD HOLLISTER.

The Odd Corners of a Roof

Roofs of all kinds made and repaired. We are specialists in the construction of roofs of all kinds. We have a large stock of materials and tools on hand.

M F Roofing Tins

Roofs of all kinds made and repaired. We are specialists in the construction of roofs of all kinds. We have a large stock of materials and tools on hand.

AMERICAN TINS

Roofs of all kinds made and repaired. We are specialists in the construction of roofs of all kinds. We have a large stock of materials and tools on hand.

RUSSIAN MULBERRY.

EDITOR RURAL WORLD: Since the introduction of this tree to this country some twenty years ago there has been a great deal of discussion as to its merits when planted as a screen, wind-break, hedge, timber or fruit tree. From descriptions given by some over-enthusiastic tree growers when the tree was first introduced, some planters got an exaggerated idea of some of its qualities, especially as a timber and fruit tree, and they naturally were disappointed. But the fact that there has always been a good and increasing demand for this tree through all these years shows of itself that it possesses special merit. We wish to mention some of the uses to which this tree is particularly adapted and for which we consider it of special value. Its quick growth and low spreading habit make it the most desirable deciduous tree for close-in wind-breaks for stock yards or about farm buildings.

When the rows are not planted too thickly the limbs will keep their foliage in the ground, forming an almost perfect shelter from winds and storms. It can also be grown to one of the most beautiful ornamental hedges we have, and can be depended upon to stand year after year apparently unaffected by the extremes of the season, heat or cold, and produces each year in abundance its rich, bright foliage. It is now being generally planted both in the cities and country more than any other tree or shrub for this purpose. Fruit growers generally are only just beginning to realize the great value of this tree to supply the needs of the birds and is usually a complete protection, as the birds prefer this fruit to the sour sorts of small fruits which are usually grown in the garden, especially cherries. It covers a long season of fruiting, usually from about the 1st of June to the 1st of August. To get this long season of fruiting several hundred should be planted for all opportunities. The seedling trees can be procured from the nurseries so cheaply that the expense is of but little account compared with the value to the farm. We wish also to call particular attention to the Weeping Mulberry, as it is by far the finest weeping tree of its class for either lawn or cemetery planting, being far superior in every respect to the Weeping Mountain Ash, Kilmarnock Willow, Elm, etc. It soon makes a very dense top, with the limbs gracefully trailing to the ground, and makes a most beautiful, ornamental tree. Yours truly, J. A. G.

NEW FRUITS, NOVELTIES AND THE TREES AGENT.

It is a well known fact that tree agents and nurserymen swindle people out of a great deal of money by inducing them to pay fancy prices for new varieties or old varieties under new names, says the Twentieth Century Farmer (Neb.). New varieties of all kinds of fruits are being introduced by names and represented as being of remarkable value. Their superiority over common kinds is dwelt upon with telling eloquence, resulting in many sales.

In about nine cases out of ten the planter kicks himself afterward for being led into buying something he knew nothing about. In most cases the tree or plant either proves to be worthless or no better than standard sorts. We are continually being led to marvel at the gullibility of human nature in this respect and think there must be some truth in Barnum's adage, "People like to be humbugged." It is not strange that people should be caught this way once, but it does seem odd how they can be fooled again and again in the same old way.

Irresponsible agents and dealers are the worst sinners in fleecing the public in this way, but responsible nurserymen are by no means guiltless. Most of them charge fancy prices for "novelties" which are more or less worthless. Such methods are reprehensible and go a long way toward destroying people's confidence in nurserymen. It is true that the weakness and ignorance of the public is what makes this kind of dealing possible. Many people prefer paying high prices for novelties to the uncertainty of low prices for standard, thoroughly tested varieties. The chance of getting something extra fine seems an irresistible temptation to many, even though that chance be exceedingly slim and unlikely. It is plainly the part of wisdom to take what is sure and be very certain of its value, and to be content with the standard. While all this is true, it is no excuse for deception and misrepresentation on the part of dealers.

The horticultural societies are continually besieged with complaints from those who have been cheated in this way. Here in Missouri the State society has been grappling with the problem and at their recent annual meeting passed some interesting resolutions. They believe the best way to avoid the mistakes above noted is for no planter to buy a new variety that has not been tested by some experiment station or horticultural society and considered by a worthy of propagation. Missouri has two experiment stations, and it is recommended that they be constituted a bureau of information, where any planter may ascertain by correspondence whether any new fruit or theory of propagation has been tested and found worthy. The society also places itself in harmony with the American Pomological Society on all matters of canonicity.

The possibility of such resolutions indicates the existence of reprehensible methods among nurserymen and tree agents. The idea of the experiment station or horticultural society and considered by a worthy of propagation. Missouri has two experiment stations, and it is recommended that they be constituted a bureau of information, where any planter may ascertain by correspondence whether any new fruit or theory of propagation has been tested and found worthy. The society also places itself in harmony with the American Pomological Society on all matters of canonicity.

A more serious objection, and one which cannot in the nature of things be remedied, is that environment largely determines the value of varieties. A variety which succeeds at an experiment

station might prove worthless in most other parts of the State, and vice versa. The only sure way of determining the value of varieties in this method would be to establish stations in all parts of the State.

Secretary Greene of the Iowa State Society recommends that all nurserymen, tree jobbers and agents should be licensed by the State, the jobber being also required to give bond to indemnify buyers from possible loss. He also recommends that the State Horticultural Society be changed into a State board of horticulture, with whom all complaints should be filed. This board would have authority to arbitrate all difficulties between buyers and sellers and appeal to the courts, when necessary. An inspector should be employed to visit nurseries and packing grounds and inspect stock and methods.

At the last meeting of the society the writer was appointed on a committee to report upon the above recommendation. An adverse report was handed in, because the committee believed the plan impracticable and that it would involve the society in endless trouble and complications. It is a good idea to require dealers and agents to procure a license and give a bond, but there would surely be music by the entire band if our organization should attempt to adjust the differences between buyer and seller. The great amount of friction would likely grind the go-between into powder. The expense would likely be all out of proportion to the good accomplished. There is much fraud in the nursery business, and these attempts to remedy the evils should be welcomed.

The writer recommends that when a man is tempted to buy an unknown tree or plant he should first make inquiries regarding it of his State experiment station and also of the nearest horticultural society. If an unqualified condemnation is received the safest thing to do is to let the matter drop. The seedling trees can be procured from the nurseries so cheaply that the expense is of but little account compared with the value to the farm. We wish also to call particular attention to the Weeping Mulberry, as it is by far the finest weeping tree of its class for either lawn or cemetery planting, being far superior in every respect to the Weeping Mountain Ash, Kilmarnock Willow, Elm, etc. It soon makes a very dense top, with the limbs gracefully trailing to the ground, and makes a most beautiful, ornamental tree. Yours truly, J. A. G.

FRUIT AS FOOD.

Under the above heading an exchange gives the following articles:

If the advice given here was more generally followed by mankind there would be less of sickness and the people would be stronger and better able to withstand the ills of life. There is altogether too much meat eaten by the populace of the United States, and as a rule the people are too high lived. This high living destroys the stomach, causing dyspepsia and other ills, and this is having a tendency to make weak hearts, the latter being a rapidly growing disease among the American people. And all this comes from our manner of living; we are not being careful enough of what we eat and how we eat it. While meat is a healthy food when properly used, its excessive use will cause more ills to result than will the excessive use of any other food product. This is not a vegetarian treatise but a common sense idea of the proper value of food as an edifice, and the advice given, if properly understood and followed, would result in better health, and means a more enjoyable existence. The sickly person cannot enjoy life as was intended, and only those who are physically strong have a proper conception of what living means, and are the only ones who have a thorough enjoyment of life.

Fruit is a perfect food when ripe and in prime condition. Pity it is that it is not more daily used among old and young, and that children in particular are not often encouraged to eat more fruit and less confectionery. The skins of fruit, however, should not be eaten. They are so apt to contain germs which are hurtful, and they are intended for the protection of the fruit and not for food, any more than the husks of corn, the skins of turnips or potatoes, or the rinds of melons. Many people who complain that apples, pears, and the like, do not agree with them, would find the trouble much lessened, if not altogether obviated, if they would refrain from eating the skins.

Then there is the medicinal value of fruits. A celebrated French physician divides fruit into five classes, assigning to each a special hygienic value—the sweet, the acid, the stringy, the oily and the mealy. To the acid fruits he assigns great merit, including such as strawberries, peaches, apples, lemons, oranges, raspberries, gooseberries, etc., but prohibits persons liable to neuritis of the stomach from eating cherries. Plums he recommends highly, but it is to the grape that he gives first place, believing thoroughly in the grape diet, in which grapes comprise the entire diet. The patient commences with the consumption of from one to two pounds daily, with a gradual increase to eight or ten pounds. After a few days of this diet, a marked improvement of the general health is noticeable. The grape cure is especially useful in cases of indigestion, dyspepsia, constipation, and in cases of liver troubles and gout.

The apple is one of the best of fruits. Baked or stewed apples will generally agree with the most delicate person, and are an excellent medicine in many cases of sickness. Green or half-ripe apples stewed and sweetened are pleasant to the taste, cooling, nourishing and medicinal. Prunes supply the highest nerve or brain food, and dried figs contain heat, nerve and muscle food, so both are good in cold weather. The small seeded fruits may be classed among the best foods and medicines. The sugar plum is nutritious, the acid is cooling and purifying. If children were allowed more fruit at table, especially in its season, and less meat and

Handy Farm Wagon

Electric

Handy Farm Wagon

Electric

Handy Farm Wagon

Electric

The Aplary

DIVIDING COLONIES OF BEES.

A colony of bees may very easily be divided if they are strong and do not swarm. It is necessary, of course, to have them in movable comb hives to make a complete job of it. When the colony is full of bees and the combs well filled with brood they are ready to divide. One-half will have no queen for the present, but the bees will rear one and she will be ready for duty in some twenty or twenty-five days thereafter. It is better to have a fertile queen ready to introduce in the queenless half, and a fine queen may be purchased from some breeder of good stock, and thus we have introduced new blood, which is very important.

Take out of the hive to be divided a larger portion of the frames of comb which have the oldest brood in them, that is, brood that is capped over, and with the bees that adhere to the combs set in the new hive. Leave the queen in the old hive, for she can be of more use there than in the new one, as most of the working force of bees will go back to the old hive, and it will be stronger of bees in a day or two than the new colony, and as most of the brood frames are in the new hive, empty ones take the place of them in the old one, so that she can fill them with eggs as soon as the queen in the new hive is ready to lay.

It may be necessary to take more frames from the old hive and shake the bees from them into the new one, for in the new hive we want the largest number of bees so that when all the old ones return there will be enough young bees left to take care of the brood and make a fair colony. If a new queen is to be introduced into the new colony, and she is bought of some queen breeder, directions always go with her how to proceed in introduction. At the lapse of the time mentioned above, examine the new colony for brood or a queen, if they are left to rear one, for if she fails to materialize the colony is doomed to destruction and must be furnished a queen or brood from which to rear another. Colonies may be rapidly increased thus if the honey season is good.—A. H. Huff.

EXPORT FRUIT TRADE POSSIBILITIES.

Referring to the work of the Division of Horticulture of the Department of Agriculture in the work of encouraging the export of peaches to England, H. E. Van Daman in October "Vicks" declares that the shipment made of some of Hale's best Georgia peaches, although hastily selected, proved successful and "netted good prices after the long time spent in transit."

Prof. Van Daman goes on to say that "one thing learned that was a surprise to all who knew of the experiment was that the lowest temperature in which they were kept, 32 degrees F., proved the best. Some from the same lots that were prepared for export and others for the local market were put in cold storage in New York at 32 and 46 degrees. I had the privilege of testing samples from all these lots and the lower temperature surely brought the peaches through in the better condition. They were perfectly sound after four weeks of such storage, while those at 36 were fairly good and those kept at 40 were correspondingly poorer."

There is no doubt that we are just at the beginning of the export fruit trade, and that this encouraging factor in American production can be expanded almost without limit. Modern methods of refrigeration are so perfect that it no longer is a question of cost, but of time and space to how long fruit is en route—keep an even and a low degree of temperature and the fruit will remain in statu quo, to borrow a phrase, so far as its condition is concerned. Our fruit growers should have this large opportunity in mind in the development of the peach, and when we hear orchardists express a fear of "overdoing the thing," don't worry about that; there has been a time when good fruit, properly selected, packed and distributed as to markets, was in excess of the demand—and we believe that such a time never will come.

FERTILIZING THE ORCHARD.

The regular and intelligent cultivation and fertilization of fruit trees is as much a necessity if good results are expected as would be the case with any other crop. The orchardist is often misled by many farm orchardists, who claim that their experience has proved that in many cases the practice has been deleterious rather than beneficial. But if the practice of these objectors is investigated, it will be found that in the application of the fertilizer the matter was not a study, and have fed the plants either on the wrong food or have given it to them at the wrong time. Stable manure, for instance, is a good thing in its place and when used at the proper time. But it must be remembered that it is a highly nitrogenous and consequently a growth promoting material. Supplying stable manure in large quantities in the fall has a tendency to force the growth and produce a tender, sappy wood and twigs, which do no good, but render the trees more liable to be affected by the winter cold. But while the application of nitrogen at this time is a mistake, it is not a mistake to apply of good results, it is otherwise with phosphates and potash. Whenever the apples on a particular tree begin to appear smaller and with poor keeping qualities and lack of flavor at each recurring season the grower may know that the potash in the soil is about exhausted and needs replenishing. This is much better applied in autumn that it may be thoroughly incorporated in the soil and be readily accessible, so as to be taken up and utilized by the tree in the spring. Wood ashes will be a good substitute for commercial fertilizer, and will be a good thing in its place and when used at the proper time. But it must be remembered that it is a highly nitrogenous and consequently a growth promoting material. Supplying stable manure in large quantities in the fall has a tendency to force the growth and produce a tender, sappy wood and twigs, which do no good, but render the trees more liable to be affected by the winter cold. But while the application of nitrogen at this time is a mistake, it is not a mistake to apply of good results, it is otherwise with phosphates and potash. Whenever the apples on a particular tree begin to appear smaller and with poor keeping qualities and lack of flavor at each recurring season the grower may know that the potash in the soil is about exhausted and needs replenishing. This is much better applied in autumn that it may be thoroughly incorporated in the soil and be readily accessible, so as to be taken up and utilized by the tree in the spring. Wood ashes will be a good substitute for commercial fertilizer, and will be a good thing in its place and when used at the proper time. But it must be remembered that it is a highly nitrogenous and consequently a growth promoting material. Supplying stable manure in large quantities in the fall has a tendency to force the growth and produce a tender, sappy wood and twigs, which do no good, but render the trees more liable to be affected by the winter cold. But while the application of nitrogen at this time is a mistake, it is not a mistake to apply of good results, it is otherwise with phosphates and potash. Whenever the apples on a particular tree begin to appear smaller and with poor keeping qualities and lack of flavor at each recurring season the grower may know that the potash in the soil is about exhausted and needs replenishing. This is much better applied in autumn that it may be thoroughly incorporated in the soil and be readily accessible, so as to be taken up and utilized by the tree in the spring. Wood ashes will be a good substitute for commercial fertilizer, and will be a good thing in its place and when used at the proper time. But it must be remembered that it is a highly nitrogenous and consequently a growth promoting material. Supplying stable manure in large quantities in the fall has a tendency to force the growth and produce a tender, sappy wood and twigs, which do no good, but render the trees more liable to be affected by the winter cold. But while the application of nitrogen at this time is a mistake, it is not a mistake to apply of good results, it is otherwise with phosphates and potash. Whenever the apples on a particular tree begin to appear smaller and with poor keeping qualities and lack of flavor at each recurring season the grower may know that the potash in the soil is about exhausted and needs replenishing. This is much better applied in autumn that it may be thoroughly incorporated in the soil and be readily accessible, so as to be taken up and utilized by the tree in the spring. Wood ashes will be a good substitute for commercial fertilizer, and will be a good thing in its place and when used at the proper time. But it must be remembered that it is a highly nitrogenous and consequently a growth promoting material. Supplying stable manure in large quantities in the fall has a tendency to force the growth and produce a tender, sappy wood and twigs, which do no good, but render the trees more liable to be affected by the winter cold. But while the application of nitrogen at this time is a mistake, it is not a mistake to apply of good results, it is otherwise with phosphates and potash. Whenever the apples on a particular tree begin to appear smaller and with poor keeping qualities and lack of flavor at each recurring season the grower may know that the potash in the soil is about exhausted and needs replenishing. This is much better applied in autumn that it may be thoroughly incorporated in the soil and be readily accessible, so as to be taken up and utilized by the tree in the spring. Wood ashes will be a good substitute for commercial fertilizer, and will be a good thing in its place and when used at the proper time. But it must be remembered that it is a highly nitrogenous and consequently a growth promoting material. Supplying stable manure in large quantities in the fall has a tendency to force the growth and produce a tender, sappy wood and twigs, which do no good, but render the trees more liable to be affected by the winter cold. But while the application of nitrogen at this time is a mistake, it is not a mistake to apply of good results, it is otherwise with phosphates and potash. Whenever the apples on a particular tree begin to appear smaller and with poor keeping qualities and lack of flavor at each recurring season the grower may know that the potash in the soil is about exhausted and needs replenishing. This is much better applied in autumn that it may be thoroughly incorporated in the soil and be readily accessible, so as to be taken up and utilized by the tree in the spring. Wood ashes will be a good substitute for commercial fertilizer, and will be a good thing in its place and when used at the proper time. But it must be remembered that it is a highly nitrogenous and consequently a growth promoting material. Supplying stable manure in large quantities in the fall has a tendency to force the growth and produce a tender, sappy wood and twigs, which do no good, but render the trees more liable to be affected by the winter cold. But while the application of nitrogen at this time is a mistake, it is not a mistake to apply of good results, it is otherwise with phosphates and potash. Whenever the apples on a particular tree begin to appear smaller and with poor keeping qualities and lack of flavor at each recurring season the grower may know that the potash in the soil is about exhausted and needs replenishing. This is much better applied in autumn that it may be thoroughly incorporated in the soil and be readily accessible, so as to be taken up and utilized by the tree in the spring. Wood ashes will be a good substitute for commercial fertilizer, and will be a good thing in its place and when used at the proper time. But it must be remembered that it is a highly nitrogenous and consequently a growth promoting material. Supplying stable manure in large quantities in the fall has a tendency to force the growth and produce a tender, sappy wood and twigs, which do no good, but render the trees more liable to be affected by the winter cold. But while the application of nitrogen at this time is a mistake, it is not a mistake to apply of good results, it is otherwise with phosphates and potash. Whenever the apples on a particular tree begin to appear smaller and with poor keeping qualities and lack of flavor at each recurring season the grower may know that the potash in the soil is about exhausted and needs replenishing. This is much better applied in autumn that it may be thoroughly incorporated in the soil and be readily accessible, so as to be taken up and utilized by the tree in the spring. Wood ashes will be a good substitute for commercial fertilizer, and will be a good thing in its place and when used at the proper time. But it must be remembered that it is a highly nitrogenous and consequently a growth promoting material. Supplying stable manure in large quantities in the fall has a tendency to force the growth and produce a tender, sappy wood and twigs, which do no good, but render the trees more liable to be affected by the winter cold. But while the application of nitrogen at this time is a mistake, it is not a mistake to apply of good results, it is otherwise with phosphates and potash. Whenever the apples on a particular tree begin to appear smaller and with poor keeping qualities and lack of flavor at each recurring season the grower may know that the potash in the soil is about exhausted and needs replenishing. This is much better applied in autumn that it may be thoroughly incorporated in the soil and be readily accessible, so as to be taken up and utilized by the tree in the spring. Wood ashes will be a good substitute for commercial fertilizer, and will be a good thing in its place and when used at the proper time. But it must be remembered that it is a highly nitrogenous and consequently a growth promoting material. Supplying stable manure in large quantities in the fall has a tendency to force the growth and produce a tender, sappy wood and twigs, which do no good, but render the trees more liable to be affected by the winter cold. But while the application of nitrogen at this time is a mistake, it is not a mistake to apply of good results, it is otherwise with phosphates and potash. Whenever the apples on a particular tree begin to appear smaller and with poor keeping qualities and lack of flavor at each recurring season the grower may know that the potash in the soil is about exhausted and needs replenishing. This is much better applied in autumn that it may be thoroughly incorporated in the soil and be readily accessible, so as to be taken up and utilized by the tree in the spring. Wood ashes will be a good substitute for commercial fertilizer, and will be a good thing in its place and when used at the proper time. But it must be remembered that it is a highly nitrogenous and consequently a growth promoting material. Supplying stable manure in large quantities in the fall has a tendency to force the growth and produce a tender, sappy wood and twigs, which do no good, but render the trees more liable to be affected by the winter cold. But while the application of nitrogen at this time is a mistake, it is not a mistake to apply of good results, it is otherwise with phosphates and potash. Whenever the apples on a particular tree begin to appear smaller and with poor keeping qualities and lack of flavor at each recurring season the grower may know that the potash in the soil is about exhausted and needs replenishing. This is much better applied in autumn that it may be thoroughly incorporated in the soil and be readily accessible, so as to be taken up and utilized by the tree in the spring. Wood ashes will be a good substitute for commercial fertilizer, and will be a good thing in its place and when used at the proper time. But it must be remembered that it is a highly nitrogenous and consequently a growth promoting material. Supplying stable manure in large quantities in the fall has a tendency to force the growth and produce a tender, sappy wood and twigs, which do no good, but render the trees more liable to be affected by the winter cold. But while the application of nitrogen at this time is a mistake, it is not a mistake to apply of good results, it is otherwise with phosphates and potash. Whenever the apples on a particular tree begin to appear smaller and with poor keeping qualities and lack of flavor at each recurring season the grower may know that the potash in the soil is about exhausted and needs replenishing. This is much better applied in autumn that it may be thoroughly incorporated in the soil and be readily accessible, so as to be taken up and utilized by the tree in the spring. Wood ashes will be a good substitute for commercial fertilizer, and will be a good thing in its place and when used at the proper time. But it must be remembered that it is a highly nitrogenous and consequently a growth promoting material. Supplying stable manure in large quantities in the fall has a tendency to force the growth and produce a tender, sappy wood and twigs, which do no good, but render the trees more liable to be affected by the winter cold. But while the application of nitrogen at this time is a mistake, it is not a mistake to apply of good results, it is otherwise with phosphates and potash. Whenever the apples on a particular tree begin to appear smaller and with poor keeping qualities and lack of flavor at each recurring season the grower may know that the potash in the soil is about exhausted and needs replenishing. This is much better applied in autumn that it may be thoroughly incorporated in the soil and be readily accessible, so as to be taken up and utilized by the tree in the spring. Wood ashes will be a good substitute for commercial fertilizer, and will be a good thing in its place and when used at the proper time. But it must be remembered that it is a highly nitrogenous and consequently a growth promoting material. Supplying stable manure in large quantities in the fall has a tendency to force the growth and produce a tender, sappy wood and twigs, which do no good, but render the trees more liable to be affected by the winter cold. But while the application of nitrogen at this time is a mistake, it is not a mistake to apply of good results, it is otherwise with phosphates and potash. Whenever the apples on a particular tree begin to appear smaller and with poor keeping qualities and lack of flavor at each recurring season the grower may know that the potash in the soil is about exhausted and needs replenishing. This is much better applied in autumn that it may be thoroughly incorporated in the soil and be readily accessible, so as to be taken up and utilized by the tree in the spring. Wood ashes will be a good substitute for commercial fertilizer, and will be a good thing in its place and when used at the proper time. But it must be remembered that it is a highly nitrogenous and consequently a growth promoting material. Supplying stable manure in large quantities in the fall has a tendency to force the growth and produce a tender, sappy wood and twigs, which do no good, but render the trees more liable to be affected by the winter cold. But while the application of nitrogen at this time is a mistake, it is not a mistake to apply of good results, it is otherwise with phosphates and potash. Whenever the apples on a particular tree begin to appear smaller and with poor keeping qualities and lack of flavor at each recurring season the grower may know that the potash in the soil is about exhausted and needs replenishing. This is much better applied in autumn that it may be thoroughly incorporated in the soil and be readily accessible, so as to be taken up and utilized by the tree in the spring. Wood ashes will be a good substitute for commercial fertilizer, and will be a good thing in its place and when used at the proper time. But it must be remembered that it is a highly nitrogenous and consequently a growth promoting material. Supplying stable manure in large quantities in the fall has a tendency to force the growth and produce a tender, sappy wood and twigs, which do no good, but render the trees more liable to be affected by the winter cold. But while the application of nitrogen at this time is a mistake, it is not a mistake to apply of good results, it is otherwise with phosphates and potash. Whenever the apples on a particular tree begin to appear smaller and with poor keeping qualities and lack of flavor at each recurring season the grower may know that the potash in the soil is about exhausted and needs replenishing. This is much better applied in autumn that it may be thoroughly incorporated in the soil and be readily accessible, so as to be taken up and utilized by the tree in the spring. Wood ashes will be a good substitute for commercial fertilizer, and will be a good thing in its place and when used at the proper time. But it must be remembered that it is a highly nitrogenous and consequently a growth promoting material. Supplying stable manure in large quantities in the fall has a tendency to force the growth and produce a tender, sappy wood and twigs, which do no good, but render the trees more liable to be affected by the winter cold. But while the application of nitrogen at this time is a mistake, it is not a mistake to apply of good results, it is otherwise with phosphates and potash. Whenever the apples on a particular tree begin to appear smaller and with poor keeping qualities and lack of flavor at each recurring season the grower may know that the potash in the soil is about exhausted and needs replenishing. This is much better applied in autumn that it may be thoroughly incorporated in the soil and be readily accessible, so as to be taken up and utilized by the tree in the spring. Wood ashes will be a good substitute for commercial fertilizer, and will be a good thing in its place and when used at the proper time. But it must be remembered that it is a highly nitrogenous and consequently a growth promoting material. Supplying stable manure in large quantities in the fall has a tendency to force the growth and produce a tender, sappy wood and twigs, which do no good, but render the trees more liable to be affected by the winter cold. But while the application of nitrogen at this time is a mistake, it is not a mistake to apply of good results, it is otherwise with phosphates and potash. Whenever the apples on a particular tree begin to appear smaller and with poor keeping qualities and lack of flavor at each recurring season the grower may know that the potash in the soil is about exhausted and needs replenishing. This is much better applied in autumn that it may be thoroughly incorporated in the soil and be readily accessible, so as to be taken up and utilized by the tree in the spring. Wood ashes will be a good substitute for commercial fertilizer, and will be a good thing in its place and when used at the proper time. But it must be remembered that it is a highly nitrogenous and consequently a growth promoting material. Supplying stable manure in large quantities in the fall has a tendency to force the growth and produce a tender, sappy wood and twigs, which do no good, but render the trees more liable to be affected by the winter cold. But while the application of nitrogen at this time is a mistake, it is not a mistake to apply of good results, it is otherwise with phosphates and potash. Whenever the apples on a particular tree begin to appear smaller and with poor keeping qualities and lack of flavor at each recurring season the grower may know that the potash in the soil is about exhausted and needs replenishing. This is much better applied in autumn that it may be thoroughly incorporated in the soil and be readily accessible, so as to be taken up and utilized by the tree in the spring. Wood ashes will be a good substitute for commercial fertilizer, and will be a good thing in its place and when used at the proper time. But it must be remembered that it is a highly nitrogenous and consequently a growth promoting material. Supplying stable manure in large quantities in the fall has a tendency to force the growth and produce a tender, sappy wood and twigs, which do no good, but render the trees more liable to be affected by the winter cold. But while the application of nitrogen at this time is a mistake, it is not a mistake to apply of good results, it is otherwise with phosphates and potash. Whenever the apples on a particular tree begin to appear smaller and with poor keeping qualities and lack of flavor at each recurring season the grower may know that the potash in the soil is about exhausted and needs replenishing. This is much better applied in autumn that it may be thoroughly incorporated in the soil and be readily accessible, so as to be taken up and utilized by the tree in the spring. Wood ashes will be a good substitute for commercial fertilizer, and will be a good thing in its place and when used at the proper time. But it must be remembered that it is a highly nitrogenous and consequently a growth promoting material. Supplying stable manure in large quantities in the fall has a tendency to force the growth and produce a tender, sappy wood and twigs, which do no good, but render the trees more liable to be affected by the winter cold. But while the application of nitrogen at this time is a mistake, it is not a mistake to apply of good results, it is otherwise with phosphates and potash. Whenever the apples on a particular tree begin to appear smaller and with poor keeping qualities and lack of flavor at each recurring season the grower may know that the potash in the soil is about exhausted and needs replenishing. This is much better applied in autumn that it may be thoroughly incorporated in the soil and be readily accessible, so as to be taken up and utilized by the tree in the spring. Wood ashes will be a good substitute for commercial fertilizer, and will be a good thing in its place and when used at the proper time. But it must be remembered that it is a highly nitrogenous and consequently a growth promoting material. Supplying stable manure in large quantities in the fall has a tendency to force the growth and produce a tender, sappy wood and twigs, which do no good, but render the trees more liable to be affected by the winter cold. But while the application of nitrogen at this time is a mistake, it is not a mistake to apply of good results, it is otherwise with phosphates and potash. Whenever the apples on a particular tree begin to appear smaller and with poor keeping qualities and lack of flavor at each recurring season the grower may know that the potash in the soil is about exhausted and needs replenishing. This is much better applied in autumn that it may be thoroughly incorporated in the soil and be readily accessible, so as to be taken up and utilized by the tree in the spring. Wood ashes will be a good substitute for commercial fertilizer, and will be a good thing in its place and when used at the proper time. But it must be remembered that it is a highly nitrogenous and consequently a growth promoting material. Supplying stable manure in large quantities in the fall has a tendency to force the growth and produce a tender, sappy wood and twigs, which do no good, but render the trees more liable to be affected by the winter cold. But while the application of nitrogen at this time is a mistake, it is not a mistake to apply of good results, it is otherwise with phosphates and potash. Whenever the apples on a particular tree begin to appear smaller and with poor keeping qualities and lack of flavor at each recurring season the grower may know that the potash in the soil is about exhausted and needs replenishing. This is much better applied in autumn that it may be thoroughly incorporated in the soil and be readily accessible, so as to be taken up and utilized by the tree in the spring. Wood ashes will be a good substitute for commercial fertilizer, and will be a good thing in its place and when used at the proper time. But it must be remembered that it is a highly nitrogenous and consequently a growth promoting material. Supplying stable manure in large quantities in the fall has a tendency to force the growth and produce a tender, sappy wood and twigs, which do no good, but render the trees more liable to be affected by the winter cold. But while the application of nitrogen at this time is a mistake, it is not a mistake to apply of good results, it is otherwise with phosphates and potash. Whenever the apples on a particular tree begin to appear smaller and with poor keeping qualities and lack of flavor at each recurring season the grower may know that the potash in the soil is about exhausted and needs replenishing. This is much better applied in autumn that it may be thoroughly incorporated in the soil and be readily accessible, so as to be taken up and utilized by the tree in the spring. Wood ashes will be a good substitute for commercial fertilizer, and will be a good thing in its place and when used at the proper time. But it must be remembered that it is a highly nitrogenous and consequently a growth promoting material. Supplying stable manure in large quantities in the fall has a tendency to force the growth and produce a tender, sappy wood and twigs, which do no good, but render the trees more liable to be affected by the winter cold. But while the application of nitrogen at this time is a mistake, it is not a mistake to apply of good results, it is otherwise with phosphates and potash. Whenever the apples on a particular tree begin to appear smaller and with poor keeping qualities and lack of flavor at each recurring season the grower may know that the potash in the soil is about exhausted and needs replenishing. This is much better applied in autumn that it may be thoroughly incorporated in the soil and be readily accessible, so as to be taken up and utilized by the tree in the spring. Wood ashes will be a good substitute for commercial fertilizer, and will be a good thing in its place and when used at the proper time. But it must be remembered that it is a highly nitrogenous and consequently a growth promoting material. Supplying stable manure in large quantities in the fall has a tendency to force the growth and produce a tender, sappy wood and twigs, which do no good, but render the trees more liable to be affected by the winter cold. But while the application of nitrogen at this time is a mistake, it is not a mistake to apply of good results, it is otherwise with phosphates and potash. Whenever the apples on a particular tree begin to appear smaller and with poor keeping qualities and lack of flavor at each recurring season the grower may know that the potash in the soil is about exhausted and needs replenishing. This is much better applied in autumn that it may be thoroughly incorporated in the soil and be readily accessible, so as to be taken up and utilized by the tree in the spring. Wood ashes will be a good substitute for commercial fertilizer, and will be a good thing in its place and when used at the proper time. But it must be remembered that it is a highly nitrogenous and consequently a growth promoting material. Supplying stable manure in large quantities in the fall has a tendency to force the growth and produce a tender, sappy wood and twigs, which do no good, but render the trees more liable to be affected by the winter cold. But while the application of nitrogen at this time is a mistake, it is not a mistake to apply of good results, it is otherwise with phosphates and potash. Whenever the apples on a particular tree begin to appear smaller and with poor keeping qualities and lack of flavor at each recurring season the grower may know that the potash in the soil is about exhausted and needs replenishing. This is much better applied in autumn that it may be thoroughly incorporated in the soil and be readily accessible, so as to be taken up and utilized by the tree in the spring. Wood ashes will be a good substitute for commercial fertilizer, and will be a good thing in its place and when used at the proper time. But it must be remembered that it is a highly nitrogenous and consequently a growth promoting material. Supplying stable manure in large quantities in the fall has a tendency to force the growth and produce a tender, sappy wood and twigs, which do no good, but render the trees more liable to be affected by the winter

Live Stock

DATE CLAIMS FOR LIVE STOCK SALES.

Claim dates for public sales will be published in this column as soon as such sales are to be advertised in the RURAL WORLD. Otherwise they will be charged at regular rates:

POLAND CHINAS.
November 11—Wm. Plummer, Barclay, Kan.
November 14—Harry E. Lunt, Burden, Kan.
November 15—A. B. Mull, Iola, Kas., Poland Chinas.
December 5—J. D. Jesse, Brownings, Mo., Poland Chinas.

BERKSHIRE SWINE.
November 7—Manwaring Bros., Lawrence, Kan.
November 13—Kansas Breeders, Manhattan, Kas.
November 13—Combination sale Berkshires, at Manhattan, Kas.
Nov. 6, 1902—Combination sale, East St. Louis, Ill.; Manager, C. H. C. Anderson, Carlinville, Ill.

Dec. 8, 1902—Combination sale Berkshires.
Manager, A. J. Lovejoy, Decatur, Ill.; Clerk, Charles F. Mills, Springfield, Ill.
Feb. 12—Biltmore Farm's annual sale of Berkshire brood sows, Biltmore, N. C.
SHORTHORN SHOWS AND SALES.
Nov. 11—J. J. Little, E. S. Stewart, Dr. J. F. Keith and J. H. Cottingham, at Sturgeon, Mo.

HEREFORDS.
November 13—Marshall County (Kas.) Hereford Breeders' Association, Hereford; E. B. Woodman, secretary.
December 4—American Hereford Breeders' Association, Chicago, Ill. Week of International Live Stock Exhibition.
December 8—J. E. Logan and Benson (Gibbert & Sons, Hereford, Kansas City, Mo.)
December 10—T. H. Hugh, Hereford, Kansas City, Mo.

January 26-31, 1903—T. F. B. Botham, Hereford, Kansas City, Mo.
January 28-29—Combination sale of Herefords at Chicago.
January 12-17, 1903—C. W. Armour and Jas. A. Funkhouser, Hereford, Kansas
January 23-25—C. A. Jamison and others, Peoria, Ill., at Chicago.
February 10, 11, 12, 1903—C. A. Stannard and others, Hereford, at Oklahoma City, O. T.

February 24-25, 1903—C. A. Stannard and others, Hereford, Kansas City, Mo.
May 6-7, 1903—Colin Cameron, Hereford, Kansas City, Mo.
ANGUS, GALLOWAYS, SHORTHORNS AND HEREFORDS.
April 7-8, 1903—W. C. McGavock, Mgr. Aberdeen Angus, Kansas City, Mo.
SHORTHORNS AND CLYDESDALES.
November 6—Thos. Andrews, Cambridge, Neb.

SHORTHORNS, HEREFORDS AND ABERDEEN ANGUS.
November 10—Brantstatter, Robinson and Wright, Shorthorns, at Vandalla, Mo.
November 11—J. J. Little, E. S. Stewart, Dr. J. F. Keith and J. H. Cottingham, at Sturgeon, Mo.
November 12—T. W. Ragsdale, T. A. Bailey and Wm. R. Turner, at Shelbyville, Mo.
November 13—Wm. R. Turner, at Shelbyville, Mo.

November 14—Wm. R. Turner, Shorthorns, at Harris, Mo.
December 16—F. M. Gifford, Shorthorns, Milford, Kas.
November 19—Cooper County Shorthorn Breeders' Association, Shorthorns, Bunceton, Mo.
November 30—North Missouri Combination Sale Association, Trenton, Mo.
November 23—Shorthorns, W. P. Harned and F. M. Marshall, Kansas City, Mo.

December 5—Combination sale, J. D. Jesse, Mgr., Brownings, Mo.
December 16—Gifford, Shorthorns, Milford, Kas.
February 10-11—Col. G. M. Casey, Clinton, Mo., and T. J. Wornall & Son, Liberty, Mo., at Kansas City.
February 17—D. K. Kellerman & Son, Mound City, Kan., at Kansas City.
February 18—L. M. Forbes & Son, at Chicago, Ill.

H. J. Hughes, Secretary.
STOCK NOTES.
Remember the offering of Shorthorns to be sold at Harris, Mo., on Nov. 13, by Messrs. Purdy Bros. They are offering a good all-round lot of cattle; they have bred some of the leading prize winners of recent years at our largest shows, and some of the animals that produced them are in this sale. This is a sale worth remembering. You can get a catalog by addressing as above.

Any one wanting some good Shorthorns that are Scotch and Scotch-topped should attend the sale at Sturgeon, Mo., on Nov. 11. There are some splendid cattle in the catalog, and they are a well-bred lot. All their former sales have given great satisfaction to the buyer, and altogether this is the best lot they ever sold. Mr. E. S. Stewart, Sturgeon, Mo., will forward catalog to those writing for them.

The combination sale at Shelbyville, Mo., of Shorthorns, on Nov. 12, will be a good race to buy good Shorthorns, and as this is their first combination sale there are likely to be some good bargains in Scotch-topped cattle. Remember the date and send to Mr. T. A. Bailey, Shelbyville, Mo., for a catalog.

Messrs. A. B. and D. W. Hensley's Shorthorn sale at Montgomery City, Mo., on Nov. 23, was well attended, by local men mostly. The offering was just off of grain, and most of the spring calves were sold separately, which made the average low. Sixty-seven head, all ages, brought \$1,377.50; an average of \$21.50.

SALE OF V. T. HILL'S RED POLLS.
If any proof were wanting of the growing estimation of the Red Polls as a profitable breed, the sale of Mr. V. T. Hill's herd at Dexter Park, Chicago, on the 24th ult., is a record breaker for the breed, several of the animals realizing big figures. This is no surprise to those who know the excellent qualities of the Red Polls, but in addition to this was the great merit of individual members of the herd, and last, but by no means least, the splendid condition in which the cattle were presented for sale—not too fat to be useful, as dairy animals, nor so thin as dairy cows in full milk are generally seen.

Inject with Hood Farm Breeding Powder when they fail to breed, do not clean, irregular; also after abortion. Of greatest value to breeders and stock owners. Dollar size by mail, \$1.50; large size four times more, to any railroad express point in U. S. \$2.75. C. I. Hood & Co., Lowell, Mass.

The whole herd gave evidence of having been under the immediate eye of an observant and careful owner. The prices realized by the tops must be gratifying to Mr. Hill, who has himself paid large sums for imported bulls and cows to build up his herd. Popular, an imported bull, purchased from and bred by Lord Amherst, was bought by G. H. Shith of Chillicothe, Ohio, at the handsome and record price for a Red Poll bull of \$1,200. Peony, an imported cow, bred by Baron Rothschild, England, brought \$1,075 to the nod of Mr. J. W. Martin, Richmond City, Wis. C. S. Carr of West Virginia, paid the record price of \$1,135 for Peony 3d, a cow bred by Lord Amherst. Several other cows realized \$500, and others sold well up to that mark. The young stock sold at a price cheap, but on the whole good prices were realized.

Total amount realized by sale of 92 head.....\$55,705
An average of.....270
Total amount realized on 78 cows.....\$1,389
An average of.....175
Total realized on 14 bulls.....475
An average of.....33

The combination Shorthorn sale at Moberly on the 30th was well attended, and as the offering was sold in this flesh, the prices were not high, but all things considered, it was a good sale. Following is a list of the lots that brought \$100 or over:

No. Amount.
2-W. R. Slaughter, Salisbury, Mo.....\$100
6-G. D. Halliburton, Cairo, Mo.....125
7-V. E. Terrell, Moberly.....140
8-C. Orndorff, Booneville, Mo.....100
14-V. E. Terrell.....135
15-G. D. Halliburton.....130
20-G. D. Halliburton.....200
22-Nice Bros., Moberly.....250
23-W. P. Nichols, Moberly.....130
34-O. Vangler, Salisbury, Mo.....200
35-W. P. Nichols, Moberly.....200
Forty-five head brought \$1,000; average, \$20.

SHORTHORN SALE AT FAYETTE.
Mr. Chenuit Todd's sale of Shorthorn cattle at his farm, four miles east of Fayette, Mo., on the 29th, was well attended. All the cattle were of good quality and in good condition. The sale was a success, and Mr. Todd ought to be congratulated on breeding such a good class of cattle. His bulls were thin and sold low. Most of the cattle remain in the county and all remain in Missouri. The following is a list of buyers of animals that brought \$100 or over:

No. Amount.
1-Mr. David Geyer, Fayette, Mo.....\$125
2-J. C. Brown, Glasgow, Mo.....125
3-John Petree, Fayette, Mo.....125
4-J. H. Lee, Forrest Green, Mo.....125
5-J. H. Lee, Forrest Green, Mo.....125
6-E. H. Hurl & Son, Clinton Hill, Mo.....125
7-J. H. Lee, Forrest Green, Mo.....125
8-L. P. Hume, Glasgow, Mo.....125
9-Pierce & Levenworth, Rosalia, Mo.....125
10-John Petree, Fayette, Mo.....125
11-L. S. Harland, Clinton Hill, Mo.....125
12-Mary White, Macon, Mo.....125
13-Dr. H. K. Givins, Fayette, Mo.....125
14-Dr. H. K. Givins, Fayette, Mo.....125
15-Dr. H. K. Givins, Fayette, Mo.....125
16-Wm. Meyers, Booneville, Mo.....125
17-L. S. Harland, Clinton Hill, Mo.....125
18-J. C. Brown, Glasgow, Mo.....125
19-J. C. Brown, Glasgow, Mo.....125
20-J. C. Brown, Glasgow, Mo.....125
21-Mrs. Pat Wilkerson, Fayette, Mo.....125
22-F. M. Stappleton, Fayette, Mo.....125
23-M. T. Tinnis, Fayette, Mo.....125
24-L. S. Harland, Clinton Hill, Mo.....125
25-L. S. Harland, Clinton Hill, Mo.....125
26-L. S. Harland, Clinton Hill, Mo.....125
27-L. S. Harland, Clinton Hill, Mo.....125
28-L. S. Harland, Clinton Hill, Mo.....125
29-L. S. Harland, Clinton Hill, Mo.....125
30-L. S. Harland, Clinton Hill, Mo.....125

The eighteenth annual meeting of the St. Louis Live Stock Exchange was held in the Exchange hall a few days since, with a large majority of the members present. The election of officers resulted in the unanimous choice of Albert L. Keck as president, and Lee Overstreet as vice-president. The following directors and committee were also elected:

Directors for three years—T. J. Daniel, J. W. Sanders and W. H. Coy; director for one year, C. M. Rafferty. The latter election was to fill out the unexpired term of W. B. Stuckey, resigned. For committee of arbitration, William Chas. D. H. Sprecher and E. S. Coddington; for committee of appeals, J. W. Pearce, E. C. Gibson and Z. T. Steele; for joint executive committee (buyers), A. W. Morris, H. S. Morris; sellers, Z. A. Moore and F. C. Sparks. The report of the board of directors, reviewing the business of the closing year, exhibited a highly satisfactory state of things. It dealt particularly upon the magnificent gains which had been made in cattle receipts and spoke happily of the era of improvement and expansion which has set in in the live stock business of St. Louis. Great things had been accomplished, notwithstanding the drought of 1901, which augurs exceedingly well for the future of the market with the present bright agricultural prospects before us.

There is no doubt that Cooper county, Missouri, has more breeders of Shorthorn cattle than any other county in the state, and they own some of the very best animals of this breed in America. The Cooper County Shorthorn Breeders' Association will hold their first public sale on Nov. 13 at Bunceton, Mo., consisting of forty females and ten bulls. Part of them will be pure Scotch, of Cruickshank's best families, the rest are choicely bred. Among the females there will be some with calves at foot and all will be bred to the best breeding bulls. The bulls are all old enough for service, and are pure Scotch.

Buyers will find the entire offering of good quality and a splendid chance to get choice breeders at their own prices. Interested parties should send for catalog to Mr. C. P. T. Secretary, Bunceton, Mo., and then attend the sale.

There will be a combination Shorthorn sale held at Kansas City, Mo., on Nov. 23 and 24 that ought to interest all lovers of good Shorthorns. Mr. F. M. Marshall, Blackwater, Mo., will consign from his noted herd some of his best cattle of Scotch and Bates breeding, and Mr. Marshall has good ones. The five yearling heifers of his own breeding that were sold at the Muns-Biggler sale last spring that averaged over \$200 each, in proof enough that they have quality, and he will undoubtedly sell some just as good in this sale.

Mr. S. W. Roberts, Pleasant Green, Mo., who owns more Shorthorn and Bates cattle than any other man we know of, will consign: Four Aldrie Duchess, four

Grand Duchess, one Oxford, two Barringtons, one Filbert, one Duchess of Kent, five 'Crags', five 'Minas', four 'Rose of Sharon', one 'Luster', four 'Rosemarys', two 'Duchesses', all cows and heifers, and all old enough will be bred to 15th Duke of Aldrie 15712 or Marshall Wild Bites 17238. Here is your chance to get Bates cattle. Mr. W. F. Harned, Vermont, Mo., will sell a draft from his old established and noted herd, of which the Scotch sire Godoy is one of the best animals Mr. Harned ever bred, and whose calf he has sold for higher price than any bull he ever used. Mr. Harned's offering will be of Scotch and Scotch-topped breeding, and the consignments from these three herds ought to furnish enough different lines of breeding to please all the varieties of tastes and will undoubtedly be a good place to buy good Shorthorns at your own prices. Send to Mr. S. W. Roberts, Pleasant Green, Mo., for a catalog of sale.

SILAGE FOR STEERS.
Editor RURAL WORLD: We commenced feeding the 178 steers weighing on October 7 an average of 1,150 pounds. They were running on dry and exhausted pastures and were losing flesh, and on this account we commenced the feeding of silage to the steers, which they are now finishing the silage, to wit, Oct. 7, and gave them all they would eat after the end of the first week. The amount consumed during the first thirty days was 45 pounds per head per day. The cattle made an average gain of 56 pounds per head. They had no other feed but the ensilage and the silage, which they are now finishing. The second month we commenced feeding some shock corn along with the ensilage and gave the cattle about one-third of a full feed, as nearly as we could estimate it. This resulted in a reduced consumption of ensilage, and the cattle made a gain of 75 pounds per head during the second month.

During December and January the cattle were fed in the same way except that they were put up in dry lots, and we added some clover hay. The cattle eat of the hay about 10 pounds per day per head. We commenced selling the cattle about the 1st of February. They were sold at three different times.

The result during the whole feeding period, ranging from 120 to 150 days, was that the cattle made an average gain of 24 pounds per day, and consumed, estimating the ensilage to contain 10 per cent of its weight in ear corn, less than one-half the amount of corn which we have always heretofore been compelled to feed like cattle in order to make that much gain.

I am greatly pleased with ensilage as a feed for fattening steers. In my judgment it doubles the net profit of the corn crop.

The cost of putting the corn in the silage was, with us, no more than the cost of putting it in shock, and one man could feed four times as many cattle from the silage as he could were he to haul the corn from the shock in the field in the ordinary way.

A part of this ensilage was a mixture of corn and soy beans, and from this we got better results than from the all-corn ensilage. We also carried through the winter about 300 head of 900-pound steers on the ensilage alone and they made very satisfactory gains and kept in much better condition than we had ever secured with stock cattle, wintered in the ordinary way with hay and fodder.

The best results in feeding of ensilage will be obtained by using it in connection with clover hay, soy beans, cow peas or some other food, rich in protein.

In my judgment an ideal food for fattening 1,000-pound steers would be a lot of the clover hay and corn ensilage which they will eat, and about 15 pounds of corn per day, or something less than one-half the grain they would eat if given nothing else, with a little oil meal added to the grain during the last month of the feeding.

With stock steers, yearlings and two's, an excellent feed is the corn ensilage and hay without any grain at all, and they will keep in fine condition and make satisfactory gains, and can be wintered much cheaper and better than under the old method of carrying stock cattle through the winter.

We were so well pleased with our experience in feeding ensilage to fattening cattle last winter that we are now finishing the construction of another silo, which will hold about 1,100 tons. This will give us a total ensilage capacity of about 22,000 tons, and we are expecting to carry through the winter at least 600 cattle with ensilage as the main ration.

We planted cow peas with corn this year, and will cut the corn and cow peas together, and we will also put into the silo some soy beans, mixing the same with alternate loads of corn. I am inclined to think that ensilage made of one-half corn and the other half soy beans or cow peas will be properly balanced the feed as to require very little, if any, clover hay. Still, we shall expect to keep clover hay by our cattle all the time.

The silo we are now finishing is 36 feet inside diameter and 50 feet in height, and is built of cement, the wall being 12 inches thick. We have laid in the wall, 12 inches apart, 8-inch wire, and the cost will not exceed \$5 per ton capacity, and the structure looks now as though it would last forever. The wall is as hard as stone. The material we used was Portland cement, sand and coarse gravel, the mixture being one part cement, three parts sand and gravel. Our ordinary farm labor has erected the silo.

In my judgment the time is at hand when more economical methods of producing beef must be adopted, and the silo is, I think, the solution of the question. Under the old method of fattening cattle on shock corn nearly one-half the value of the corn is wasted, and using a corn ration alone the full benefit of the other half is not obtained.

The silo, clover and alfalfa, soy beans and cow peas, are, in my judgment, destined to work a revolution in methods of beef production. Yours truly,
HUMPHREY JONES.

SAVING FEED.
Whenever we hear a man talking about what fine stock he has and how little said stock eats we begin to get suspicious. There may be men who have developed and maintain fine herds or flocks with very light feeding, but we have thus far failed to discover them. One of our friends used to be anxious to tell how little feed it took for him to winter a brood sow. He was a beginner then, and he was going to have a whole herd of brood sows on roots and fresh air. He isn't talking about cheap wintering any more but feeding him feed and corn. He had some experience that knocked the cheap wintering, non-feeding foolishness completely out of him. He realized now that those who have such good looking

stock on extremely light rations are likely to underestimate some things. The man who is looking for good stock in order to save his feed is going to be disappointed. The way good stock saves feed is not in eating less but in making good use of what it eats, which is generally more than is allowed to common cattle.

CATTLE-FEEDING IN IOWA.
Present indications, says the "National Provisioner," are that an unprecedented number of cattle will be fed in Iowa this year. Owing to the fact that frosts have injured the crop of corn, there will be an extraordinary amount of soft and unmarketable corn that will be suitable only for feeding purposes. Farmers who heretofore have sold the bulk of their crop are buying cattle, and reports received by their city correspondents from country banks are to the effect there is an unprecedented demand for money with which to buy stock cattle and feeders. Reports gathered through the railroads as to the destination and meaning of unusually heavy shipments of cattle into that state are that they are being taken into the country by farmers for feeding soft corn.

A type of Shorthorn cattle has been raised to the dignity of a special breed in Lincolnshire, England. It is known as the Lincolnshire Red Shorthorn. A society was formed in 1885 to protect these animals. They are cherry red in color and of large size, but they are not quite so beefy as that of the ordinary Shorthorns. Their milking qualities are of high order.

ST. LOUIS NATIONAL STOCK YARDS.
Market Report furnished by Evans-Snyder-Buel Company.
Receipts for week ending Saturday, Nov. 1, 1902, were as follows: 23,021 cattle, 35,768 hogs, 5,079 sheep.

CATTLE.—Native receipts were moderate. Quality of beef steers was common, with exception of a few lows. Market ruled slow throughout week, with lower tendencies each day. Receipts of cow and heifer butcher stuff was moderate; very best grades met with a good steady demand and sold steady; all others were a shade lower. Canners were about the same. Stocker and feeder receipts were light, but the quality common; best sold 100 higher; common ones met with a better inquiry at strong values. Bulls ruled in good demand at strongest prices of the season. Calf calves sold strong; top \$7.50 per cwt., bulk \$5.00 to \$5.25.

Best native beef steers, strictly fancy, 1,300 to 1,700 lbs., \$24.50; choice export steers, 1,300 to 1,600 lbs., \$23.00; good shipping and export steers, 1,300 to 1,600 lbs., \$21.50; fair to medium shipping steers, 1,300 to 1,600 lbs., \$20.50. Steers, 1,300 to 1,600 lbs., \$19.50; heavy weight, \$18.50; fair to medium, \$17.50; light, \$16.50; poor, \$15.50; very poor, \$14.50; common, \$13.50; poor, \$12.50; very poor, \$11.50; common, \$10.50; poor, \$9.50; very poor, \$8.50; common, \$7.50; poor, \$6.50; very poor, \$5.50; common, \$4.50; poor, \$3.50; very poor, \$2.50; common, \$1.50; poor, \$0.50; very poor, \$0.50.

Best native beef steers, strictly fancy, 1,300 to 1,700 lbs., \$24.50; choice export steers, 1,300 to 1,600 lbs., \$23.00; good shipping and export steers, 1,300 to 1,600 lbs., \$21.50; fair to medium shipping steers, 1,300 to 1,600 lbs., \$20.50. Steers, 1,300 to 1,600 lbs., \$19.50; heavy weight, \$18.50; fair to medium, \$17.50; light, \$16.50; poor, \$15.50; very poor, \$14.50; common, \$13.50; poor, \$12.50; very poor, \$11.50; common, \$10.50; poor, \$9.50; very poor, \$8.50; common, \$7.50; poor, \$6.50; very poor, \$5.50; common, \$4.50; poor, \$3.50; very poor, \$2.50; common, \$1.50; poor, \$0.50; very poor, \$0.50.

Best native beef steers, strictly fancy, 1,300 to 1,700 lbs., \$24.50; choice export steers, 1,300 to 1,600 lbs., \$23.00; good shipping and export steers, 1,300 to 1,600 lbs., \$21.50; fair to medium shipping steers, 1,300 to 1,600 lbs., \$20.50. Steers, 1,300 to 1,600 lbs., \$19.50; heavy weight, \$18.50; fair to medium, \$17.50; light, \$16.50; poor, \$15.50; very poor, \$14.50; common, \$13.50; poor, \$12.50; very poor, \$11.50; common, \$10.50; poor, \$9.50; very poor, \$8.50; common, \$7.50; poor, \$6.50; very poor, \$5.50; common, \$4.50; poor, \$3.50; very poor, \$2.50; common, \$1.50; poor, \$0.50; very poor, \$0.50.

Best native beef steers, strictly fancy, 1,300 to 1,700 lbs., \$24.50; choice export steers, 1,300 to 1,600 lbs., \$23.00; good shipping and export steers, 1,300 to 1,600 lbs., \$21.50; fair to medium shipping steers, 1,300 to 1,600 lbs., \$20.50. Steers, 1,300 to 1,600 lbs., \$19.50; heavy weight, \$18.50; fair to medium, \$17.50; light, \$16.50; poor, \$15.50; very poor, \$14.50; common, \$13.50; poor, \$12.50; very poor, \$11.50; common, \$10.50; poor, \$9.50; very poor, \$8.50; common, \$7.50; poor, \$6.50; very poor, \$5.50; common, \$4.50; poor, \$3.50; very poor, \$2.50; common, \$1.50; poor, \$0.50; very poor, \$0.50.

Best native beef steers, strictly fancy, 1,300 to 1,700 lbs., \$24.50; choice export steers, 1,300 to 1,600 lbs., \$23.00; good shipping and export steers, 1,300 to 1,600 lbs., \$21.50; fair to medium shipping steers, 1,300 to 1,600 lbs., \$20.50. Steers, 1,300 to 1,600 lbs., \$19.50; heavy weight, \$18.50; fair to medium, \$17.50; light, \$16.50; poor, \$15.50; very poor, \$14.50; common, \$13.50; poor, \$12.50; very poor, \$11.50; common, \$10.50; poor, \$9.50; very poor, \$8.50; common, \$7.50; poor, \$6.50; very poor, \$5.50; common, \$4.50; poor, \$3.50; very poor, \$2.50; common, \$1.50; poor, \$0.50; very poor, \$0.50.

Best native beef steers, strictly fancy, 1,300 to 1,700 lbs., \$24.50; choice export steers, 1,300 to 1,600 lbs., \$23.00; good shipping and export steers, 1,300 to 1,600 lbs., \$21.50; fair to medium shipping steers, 1,300 to 1,600 lbs., \$20.50. Steers, 1,300 to 1,600 lbs., \$19.50; heavy weight, \$18.50; fair to medium, \$17.50; light, \$16.50; poor, \$15.50; very poor, \$14.50; common, \$13.50; poor, \$12.50; very poor, \$11.50; common, \$10.50; poor, \$9.50; very poor, \$8.50; common, \$7.50; poor, \$6.50; very poor, \$5.50; common, \$4.50; poor, \$3.50; very poor, \$2.50; common, \$1.50; poor, \$0.50; very poor, \$0.50.

Best native beef steers, strictly fancy, 1,300 to 1,700 lbs., \$24.50; choice export steers, 1,300 to 1,600 lbs., \$23.00; good shipping and export steers, 1,300 to 1,600 lbs., \$21.50; fair to medium shipping steers, 1,300 to 1,600 lbs., \$20.50. Steers, 1,300 to 1,600 lbs., \$19.50; heavy weight, \$18.50; fair to medium, \$17.50; light, \$16.50; poor, \$15.50; very poor, \$14.50; common, \$13.50; poor, \$12.50; very poor, \$11.50; common, \$10.50; poor, \$9.50; very poor, \$8.50; common, \$7.50; poor, \$6.50; very poor, \$5.50; common, \$4.50; poor, \$3.50; very poor, \$2.50; common, \$1.50; poor, \$0.50; very poor, \$0.50.

Best native beef steers, strictly fancy, 1,300 to 1,700 lbs., \$24.50; choice export steers, 1,300 to 1,600 lbs., \$23.00; good shipping and export steers, 1,300 to 1,600 lbs., \$21.50; fair to medium shipping steers, 1,300 to 1,600 lbs., \$20.50. Steers, 1,300 to 1,600 lbs., \$19.50; heavy weight, \$18.50; fair to medium, \$17.50; light, \$16.50; poor, \$15.50; very poor, \$14.50; common, \$13.50; poor, \$12.50; very poor, \$11.50; common, \$10.50; poor, \$9.50; very poor, \$8.50; common, \$7.50; poor, \$6.50; very poor, \$5.50; common, \$4.50; poor, \$3.50; very poor, \$2.50; common, \$1.50; poor, \$0.50; very poor, \$0.50.

Best native beef steers, strictly fancy, 1,300 to 1,700 lbs., \$24.50; choice export steers, 1,300 to 1,600 lbs., \$23.00; good shipping and export steers, 1,300 to 1,600 lbs., \$21.50; fair to medium shipping steers, 1,300 to 1,600 lbs., \$20.50. Steers, 1,300 to 1,600 lbs., \$19.50; heavy weight, \$18.50; fair to medium, \$17.50; light, \$16.50; poor, \$15.50; very poor, \$14.50; common, \$13.50; poor, \$12.50; very poor, \$11.50; common, \$10.50; poor, \$9.50; very poor, \$8.50; common, \$7.50; poor, \$6.50; very poor, \$5.50; common, \$4.50; poor, \$3.50; very poor, \$2.50; common, \$1.50; poor, \$0.50; very poor, \$0.50.

Best native beef steers, strictly fancy, 1,300 to 1,700 lbs., \$24.50; choice export steers, 1,300 to 1,600 lbs., \$23.00; good shipping and export steers, 1,300 to 1,600 lbs., \$21.50; fair to medium shipping steers, 1,300 to 1,600 lbs., \$20.50. Steers, 1,300 to 1,600 lbs., \$19.50; heavy weight, \$18.50; fair to medium, \$17.50; light, \$16.50; poor, \$15.50; very poor, \$14.50; common, \$13.50; poor, \$12.50; very poor, \$11.50; common, \$10.50; poor, \$9.50; very poor, \$8.50; common, \$7.50; poor, \$6.50; very poor, \$5.50; common, \$4.50; poor, \$3.50; very poor, \$2.50; common, \$1.50; poor, \$0.50; very poor, \$0.50.

Best native beef steers, strictly fancy, 1,300 to 1,700 lbs., \$24.50; choice export steers, 1,300 to 1,600 lbs., \$23.00; good shipping and export steers, 1,300 to 1,600 lbs., \$21.50; fair to medium shipping steers, 1,300 to 1,600 lbs., \$20.50. Steers, 1,300 to 1,600 lbs., \$19.50; heavy weight, \$18.50; fair to medium, \$17.50; light, \$16.50; poor, \$15.50; very poor, \$14.50; common, \$13.50; poor, \$12.50; very poor, \$11.50; common, \$10.50; poor, \$9.50; very poor, \$8.50; common, \$7.50; poor, \$6.50; very poor, \$5.50; common, \$4.50; poor, \$3.50; very poor, \$2.50; common, \$1.50; poor, \$0.50; very poor, \$0.50.

Best native beef steers, strictly fancy, 1,300 to 1,700 lbs., \$24.50; choice export steers, 1,300 to 1,600 lbs., \$23.00; good shipping and export steers, 1,300 to 1,600 lbs., \$21.50; fair to medium shipping steers, 1,300 to 1,600 lbs., \$20.50. Steers, 1,300 to 1,600 lbs., \$19.50; heavy weight, \$18.50; fair to medium, \$17.50; light, \$16.50; poor, \$15.50; very poor, \$14.50; common, \$13.50; poor, \$12.50; very poor, \$11.50; common, \$10.50; poor, \$9.50; very poor, \$8.50; common, \$7.50; poor, \$6.50; very poor, \$5.50; common, \$4.50; poor, \$3.50; very poor, \$2.50; common, \$1.50; poor, \$0.50; very poor, \$0.50.

Best native beef steers, strictly fancy, 1,300 to 1,700 lbs., \$24.50; choice export steers, 1,300 to 1,600 lbs., \$23.00; good shipping and export steers, 1,300 to 1,600 lbs., \$21.50; fair to medium shipping steers, 1,300 to 1,600 lbs., \$20.50. Steers, 1,300 to 1,600 lbs., \$19.50; heavy weight, \$18.50; fair to medium, \$17.50; light, \$16.50; poor, \$15.50; very poor, \$14.50; common, \$13.50; poor, \$12.50; very poor, \$11.50; common, \$10.50; poor, \$9.50; very poor, \$8.50; common, \$7.50; poor, \$6.50; very poor, \$5.50; common, \$4.50; poor, \$3.50; very poor, \$2.50; common, \$1.50; poor, \$0.50; very poor, \$0.50.

Best native beef steers, strictly fancy, 1,300 to 1,700 lbs., \$24.50; choice export steers, 1,30

